REMARKS/ARGUMENTS

Claims 1-3, 7-10 and 43-56 are pending is this patent application.

DOUBLE PATENTING

A terminal disclaimer is submitted herewith to US application serial number 10/842,244 which obviates the obviousness-type double patenting rejection.

CLAIM REJECTIONS UNDER 35 USC 101

Claim 1 has been amended to require "using a processor" to address the Examiner's concerns with regard to 35 USC 101.

CLAIM REJECTIONS UNDER 35 USC 112

Claim 1 has been amended to clarify the "indicating ... to be present" element to address the Examiner's concerns.

CLAIM REJECTIONS UNDER 35 USC 103

Claims 1-3, as now amended, are allowable over Robins et al. in view of Kitawaki, because neither Robins et al. nor Kitawaki nor any combination thereof teaches or suggests every element of any of these amended claims. Specifically, Figure 9B, page 17, "Gaussian approximation" of Robins et al., which is being relied upon by the Examiner, does not teach nor suggest determining based on the updating (of a master dust map or manifestation of a dust map) whether a threshold distribution of dust artifacts is present within one or more further acquired digital images, and indicating a need for service when at least said threshold distribution is determined to be present, as required at Applicants' claim 1.

The discussion at page 17 with reference to Figure 9B of Robins et al. relates to determining whether a particular pixel corresponds to a dust defect and is to be included in a defect map. Applicant recites a more relevant feature at the first element of claim 1,

i.e., "determining a probability that pixels within one or more acquired digital images correspond to dust artifacts".

The threshold used in the determination of Robins et al. at page 17 and Figure 9B for each pixel is a difference image pixel value. It is indicated by Robins et al., beginning at the bottom of page 16, that the threshold for each pixel can be obtained from surrounding pixel values. The Gaussian approximation of Figure 9B is obtained for a histogram of the number of neighborhood pixels at a particular difference image pixel value range. An active neighborhood would have a large standard deviation which would be indicative of a lack of defects (as presumably for each pixel different images will typically have different pixel values unless the pixel corresponds to a defect). There is no teaching or suggestion here of determining whether a threshold distribution of defects exists in a digital image such that there is a need for servicing the digital image acquisition system that is capturing the images.

The threshold recited at the last two elements of Applicants' claim 1 refers to the distribution of pixels that correspond to dust artifacts within a digital image. This greatly differs from the Gaussian distribution obtained for a histogram of the number of neighborhood pixels at a particular difference image pixel value range referred to by Robins et al. for determining whether a certain pixel correspond to a defect pixel, where a standard deviation below a threshold would be indicative of an inactive neighborhood of a defect pixel, and a larger standard deviation above a threshold would indicate lack of a defect. Applicants' claim 1 requires at the last two elements determining that there is a need for service when a high distribution (above a threshold distribution) of dust defects is determined to be present in a digital image.

The first element of Applicants' claim 1 requires determining a probability that pixels within one or more acquired digital images correspond to dust artifacts. This relates to the discussion by Robins et al. at page 17 and Figure 9B. However, the last two elements of Applicants' claim 1 are not anywhere taught nor suggested by Robins et al.

In addition, Kitawaki does not teach nor suggest the last two recited elements of Applicants' claim 1, i.e., determining based on the updating whether a threshold distribution of dust artifacts is present within said one or more further acquired digital images; and indicating a need for service of the system, including a cleaning process, by

notifying a system user when at least said threshold distribution is determined to be present. This advantageous feature of Applicants' invention as set forth at claim 1 provides notification of a user of a digital image acquisition system including a digital camera when a cleaning process can be performed to prevent dust defects from significantly reducing the quality of images captured with the system.

As previously discussed, Kitawaki et al. only discloses recording a dust map for specific focal lengths and aperture sizes. However, differences between different types of lens subsystems are not considered by Kitawaki et al. According to Kitawaki et al., a dust correction for a new lens is determined based on a stored dust map (presumably derived using a previous lens) for the same magnification (see paragraphs [0011]-[0012] of Kitawaki). Applicants' advantageous invention as set forth at amended claim 1, upon which claims 7-8 and 10 are each based, considers, for example, that two lenses may not have the same exit pupil, nor distance from dust surface, and thus will not have the same transformations from the master dust map.

Neither Kitawaki et al. nor Robins et al. teaches nor suggests transforming a master dust map to generate a manifestation of the master dust map for one or more specific optical parameters, calculated as a transformation of the master dust map based on these optical parameters. Instead, the table of Figure 4 of Kitawaki et al represents a series of independently determined dust maps each of which is specific to (i) a particular lens, (ii) a particular focal length for that lens, and (iii) a particular aperture setting.

Moreover, Claim 9 is allowable over Robins et al. in view of Anderson, because no combination of Robins et al. and Anderson teaches or suggests every limitation of amended claim 1 upon which claim 9 is based. For example, no combination of Robins et al. and Anderson teaches or suggests: generating a master dust map describing physical manifestations of dust on the electronic sensor array based on the determining; calculating a transformation of the master dust map to generate a manifestation of the master dust map that includes information describing dust location and appearance as a function of one or more optical parameters including exit pupil dimension of the lens assembly or distance of dust from a surface of the electronic sensor array that corresponds to a focal plane of the lens assembly, or both; analyzing pixels within one or more further acquired digital images and updating the master dust map or the

manifestation of said master dust map, or both, in accordance with the analyzing; and determining based on the updating whether a threshold distribution of dust artifacts is present within said one or more further acquired digital images, as recited at amended claim 1 upon which claim 9 is based.

NEW CLAIMS

New claims 43-49 are allowable for the same reasons as claims 1-3 and 7-10, and new claims 50-56 are also allowable for the same reasons as claims 1-3 and 7-10.

In view of the above, it is respectfully submitted that the application is now in condition for allowance. The Examiner's reconsideration and further examination are respectfully requested. The Examiner is invited to call the undersigned attorney at 408-218-3315 to discuss any outstanding issues.

In view of the above, it is respectfully submitted that the application is now in condition for allowance. The Examiner's reconsideration and further examination are respectfully requested.

The Commissioner is authorized to charge any deficiencies in fees and credit any overpayment of fees to Deposit Account No. 50-4399.

Respectfully submitted,

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